



BRULE RIVER STATE FOREST MASTER PLAN FACT SHEET

Landscape Ecology

The Brule River State Forest has a rich history of landform and soil origin dating back to the retreat of the Wisconsin Glacier some 10,000 to 12,000 years ago. The Brule Forest intersects several landforms and vegetatively distinct ecosystems. These unique ecosystems are described as follows:

*** The Lake Superior Clay Plain (ecologically classified as Subsection 212 Ja)**

During the final stages of Wisconsin glaciation, Lake Superior was much larger in size than it is today, due to glacial melt waters. Sediments accumulated on the glacial lake bottom and are now evident as the lake superior clay plains. These plains were historically forested with fir and spruce normally described as the "Boreal Forest". However farm fields now dominate the clay plains east and west of the Brule Forest. Since glacial Lake Superior had several water levels during the ice age, beaches and related terraces were developed along the landward edge of the clay plains. The beaches and terraces vary by about 400 feet from the lowest to the highest elevation, adding variety to the topography and vegetative communities within the clay plains.

When glacial Lake Superior drained, it flowed south to intercept the headwaters of the St. Croix River and cut the current Brule River Valley Spillway. This spillway also contains terraces and even a former glacial lake, which gave rise to the Brule Bog and other very unique plant complexes including balsam fir, white and black spruce and northern white cedar. Because the Brule and St Croix River headwaters remain in close proximity, the early explorers and Native Americans before them developed and used the connective portage extensively for travel.

*** The Bayfield Sand Plains (ecologically described as Subsection 212Ka)**

The Superior ice lobe of the Wisconsin glacial period split and divided to bypass the upper reaches of the Bayfield Peninsula and descended southwestward into eastern Minnesota and northwestern Wisconsin. Melt waters from this ice sheet carried sand outwash to the southwest across five counties creating the Bayfield Sand Plains. This sand-based landform is occupied predominantly by jack, red and white pines and scrub oaks. Periodic fires, of probable lightning origin, historically maintained the Bayfield Sand Plains in early successional vegetation, including pine barrens. This sand-based ecosystem provides contrast to the Superior Clay Plains of fir/spruce and the hardwoods of the Mille Lacs Uplands to the west of the sand plains.

*** The Mille Lacs Uplands (ecologically described as Subsection 212Ka)**

The superior ice lobe advanced across an area west of the sand plains and terminated in a morainal deposit to the west of the Brule and St Croix Rivers, forming the Mille Lacs Uplands. These uplands are dominated by heavier, less well drained soils which support a mixture of hardwoods including plentiful aspen. A drainage pattern of long linear alder and black spruce wetlands exists extending from the northeast to the southwest, reflecting the former glacial movement. The northern portion of the Mille Lacs Uplands drains through the St. Lawrence Sea Way, while the southern portion drains down the Mississippi River.

In summary the Brule River Forest has a rich land and soil formation history, which resulted in vegetative communities with unique ecosystem management opportunities. The challenge in future management is the identification of an array of future desired vegetative communities and the process of restoration and maintenance.

The Brule River State Forest lies in close proximity to the Douglas and Bayfield County Forests and the Chequamegon National Forest. Future management of common eco-communities will need to be coordinated to enhance ecological outcomes. The Brule River system has unique properties when compared to other streams in the Lake Superior basin.